



Helix Power

Metro Train Regenerative Braking

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National
Laboratories**



Metro Train Regenerative Braking



10 cars – 1million lbs.

What

- Regenerative braking available since 1980s
- Cheaper and more reliable than mechanical brakes
- Little or no energy reused to reaccelerate train to avoid damage to Sub-Station

Why

- About 50% of train's energy can be recycled – if done properly
 - ~\$115M savings in NYC
 - ~350,000 tons of CO₂ avoided annually
 - ~20% IRR for installed flywheel

Flywheel Functional Storage Spec for 50% Regeneration

How

- Store 1MW – 90 seconds storage
- 1,000,000 full charge/discharge cycles in 20 years
- Ability to continuously operate at full power
- Prevent motor from overheating rotor
- Charge/discharge rate 10x-100x faster than batteries



Braking Resistors.

Helix Power Flywheel is Best Solution